Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will
  be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this
  communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☒ Responsive to communication(s) filed on _16 June 2000_ .

2a)☒ This action is **FINAL.** 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

     a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

         1.☐ received.

         2.☐ received in Application No. (Series Code / Serial Number) _____ .

         3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)   18)☒ Interview Summary (PTO-413) Paper No(s). _8_ .

16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   19)☐ Notice of Informal Patent Application (PTO-152)

17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .   20)☐ Other: .

DETAILED ACTION

Response to Amendment

In response to the Office Action dated March 27, 2000, applicant has amended claims 1,

7, and 13, amended the abstract, and added claims 19 and 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-10, 13-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Breese et al. (US Patent No. 5,987,415), of record, in view of Ron (US Patent

No. 5,647,834), newly cited, and Farley et al. (US Patent No. 4,216,594), newly cited.

Regarding claims 1, 7,13, 19 and 20

"providing a database having statistics including statistics of human associations

of voice parameters with emotions" see col. 12, lines 5-21;

"receiving a voice signal" see col. 14, lines 2-33;

"extracting at least one feature of the voice signal" see col. 14, lines 2-33 and

Figure 7;

"comparing the extracted voice feature to the voice parameters in the database"

see col. 11, lines 58-67;

"selecting an emotion from the database based on the comparison of the extracted

voice feature to the voice parameter" see col. 11, lines 58-67;

"outputting the selected emotion" see col. 11, lines 58-67;

Breese et al. do not teach "receiving an input from the user, wherein the input includes a

user-determined emotion...comparing the user-determined emotion...determining whether the

user-determined emotion matches the emotion selected." Ron (US Patent No. 5,647,834)

discloses a method for effecting regulations of a subject's emotional state which can be

implemented in either a training or game scenario in which the system receives a voice signal,

extracts features from the signal, determines the user's emotions and outputs the detected

emotion to the user. Refer to col. 7, lines 41-67 continuing to col. 8, lines 1-10, where Ron

teaches that the user is prompted to provide a specific emotion in response to the system and the

user's response is compared to the emotional state presented by the computer and that the user

wins or scores when their emotion matches the expected emotion presented by the computer.

Ron also discloses that the game can be in played in a racing scenario in which the user competes

against the computer (at col. 7, lines 41-67) and that the system can be used with two subjects

(col. 10, lines 56-67 continuing to col. 11, lines 1-27). Ron teaches at col. 7, lines 44-47 that the

system can be used to help users achieve a more relaxed state and that <u>success in training also</u>

<u>has therapeutic values to teach patients who have difficulty in expressing emotion in their</u>

<u>conversation how to change their speech characteristics.</u>

Therefore, to the extent that Breese et al. do not teach receiving an input from the user,

wherein the input includes a user-determined emotion, comparing the user-determined emotion

with the emotion selected, and determining whether the user-determined emotion matches the

emotion selected, it would have been obvious to one of ordinary skill to modify the emotion

detecting system of Breese et al. to implement user input of a user-determined emotion,

comparing the user input with the emotion selected, and determining if the user emotion matches

the emotion selected as taught by, with a game or competition scenario as taught by Ron, for the

purpose of helping users achieve a more relaxed emotional state and/or assist in the therapeutic

training of individuals who have difficulty expressing emotions in speech as suggested by Ron.

Regarding the awarding of a prize to the user if the emotions match, Breese et al. do not

teach awarding a prize to the user. Ron teaches that correctly matching the specified emotion the

user scores or wins, but they do not teach awarding a prize. Farley et al. (US Patent 4,216,594)

teach a psychotherapeutic testing game in which a subject is presented with an emotional

scenario and is expected to identify and verbalize a wide range of feelings and to encourage

expression in a socially acceptable fashion (col. 3, lines 53-67 continuing to col. 4, lines 1-13).

At col. 4, lines 65-67 continuing to col. 5, lines 1-11, Farley et al. teach that tokens or chips (with

assigned point values) are awarded to user and that the chips can be exchanged for prizes from a

reward box. They teach that the tokens and prizes have a reinforcing effect and serve as an

external incentive award to strengthen the motivation for participating in the game and

performing the desired behavior.

Therefore, to the extent that Breese et al. and Ron do not teach awarding a prize to the

user, it would have been obvious to one of ordinary skill at the time of invention to provide the

user with a reward or prize for correctly matching the selected emotion, for the purpose of

providing an external incentive to motivate the user to participate and provide the correct

emotion, as taught by Farley et al.

As per claim 2, 8, and 14

"database includes probabilities of particular voice features being associated with an emotion" see Breese et al. col. 19, lines 14-67 continuing to col. 22, lines 1-67;

As per claim 3, 9, and 15

"...analyzing the probabilities and selecting the most probable emotion based on the probability" refer to Breese et al. col. 11, lines 58-67 continuing to col. 14, lines 1-50;

As per claim 4, 10, and 16

"statistics in the database include self-recognition statistics" refer to Breese et al. col. 13, lines 19-50.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 6, 11, 12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breese et al, Ron, and Farley et al. in view of Dellaert et al. ("Recognizing Emotion in Speech").

As per claims 5, 11, and 17,

Breese et al., Ron, nor Farley et al. teach "probabilities of the database include performance confusion statistics". However, refer to Dellaert et al. who teach a technique of

improving the performance of statistical pattern classification system used in classifying utterances according to the emotional content. Specifically, in section 1, Introduction and Table 1 on page 1970, Dellaert teach using human evaluators to classify speech utterances to generate a human performance confusion matrix for the purpose of evaluating the performance of the statistical recognition classifier and identifying system design improvements.

Therefore, to the extent that neither Breese et al, Ron, nor Farley et al. teach a performance confusion statistic, it would have been obvious to one of ordinary skill at the time of invention to modify the method of detecting emotions of Breese et al. to incorporate the statistical information provided by a performance confusion matrix for the purpose of evaluating the performance of the emotion detector and identifying system design improvements as taught by Dellaert et al.

As per claims 6, 12, and 18

Breese et al., Ron, nor Farley et al. teach "plurality of features are extracted including the maximum value of the fundamental frequency..." although Breese et al. teach extraction of speech features such as pitch, speed and volume, they do not teach maximum, minimum, standard deviation, etc. of specific features. Dellaert et al. teach a method of feature extraction (section 2, Feature Extraction pages 1970-1971) which extracts mean, standard deviation, minimum, maximum and range selected speech features. Dellaert et al. teaches that the implementation of the method of feature extraction in a statistical pattern recognition system for classifying emotions of utterances yields results that are comparable to human performance.

Therefore, to the extent that neither Breese et al., Ron, nor Farley et al. teach the extraction of features includes maximum, minimum, standard deviation, etc. of specific features,

it would have been obvious to one of ordinary skill at the time of invention to modify the method

of detecting emotions to extract the speech feature data as taught by Dellaert et al. for the

purpose of improving the performance of the detection system to yield results comparable to

human evaluators.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Bogdashevsky et al (US Patent No. 6,006188) teach a speech based system for assessing

the psychological, physiological or other characteristics of a test subject by providing a

knowledge base of speech parameters correlated with psychological or physiological

characteristics, receiving the voice signal of the test subject, extracting speech features from the

signal, comparing the extracted features with features in the knowledge base and determining the

subjects psychological or physiological condition. They also teach a game/competition scenario

in which the user is asked to provide an input to the system wherein the input includes an

emotion and awarding the user a prize if the user wins the game.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in

view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Angela A. Armstrong whose telephone number is 703-308-6258.
The examiner can normally be reached on Monday-Thursday 7:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, David R. Hudspeth can be reached on 703-308-4825. The fax phone numbers for the
organization where this application or proceeding is assigned are 703-308-6306 for regular
communications and 703-308-6296 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the receptionist whose telephone number is 703-305-3900.

AAA
August 27, 2000

Richemond Dorvil
Primary Examiner